



# Jekyll RDF

Template-Based Linked Data Publication  
with Minimized Effort and Maximum Scalability

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Natanael Arndt <<https://natanael.arndt.xyz/#i>>

2019-06-13

ICWE 2019, Daejeon, South Korea

funded by

**DAAD**

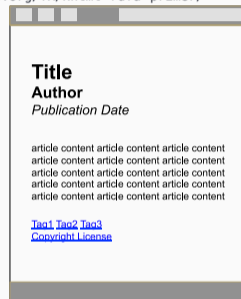
Deutscher Akademischer Austauschdienst  
German Academic Exchange Service

## Problem

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# Problem

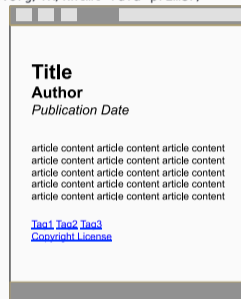
RDFa 1.1 Primer: <https://www.w3.org/TR/xhtml1-rdfa-primer/>



This is what  
humans see.

# Problem

RDFa 1.1 Primer: <https://www.w3.org/TR/xhtml1-rdfa-primer/>



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# Problem

RDFa 1.1 Primer: <https://www.w3.org/TR/xhtml1-rdfa-primer/>

This is what  
browsers see.



This is what humans see.



# Problem

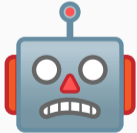
RDFa 1.1 Primer: <https://www.w3.org/TR/xhtml1-rdfa-primer/>

This is what  
browsers see.

**Headline**  
**Subheadline**  
*Italics*

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[Link4](#)



This is what  
humans see.

Title	Author	Publication Date
1. The Impact of Climate Change on Global Agriculture	Dr. Jane Smith	2023-01-15
2. Quantum Computing: A New Era of Technology	Prof. John Doe	2022-11-01
3. The Role of Artificial Intelligence in Healthcare	Dr. Emily White	2023-03-01
4. Sustainable Development Goals: Progress and Challenges	Dr. Michael Brown	2022-09-10
5. The Future of Space Exploration	Dr. Sarah Green	2023-02-20
6. The Impact of COVID-19 on the Global Economy	Dr. David Black	2022-07-05
7. The Role of Renewable Energy in a Sustainable Future	Dr. Lisa Grey	2023-04-10
8. The Impact of Urbanization on the Environment	Dr. Robert Blue	2022-12-01
9. The Role of Education in Economic Development	Dr. Anna Yellow	2023-05-01
10. The Impact of Climate Change on Human Health	Dr. James Purple	2022-10-15

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# Problem

RDFa 1.1 Primer: <https://www.w3.org/TR/xhtml1-rdfa-primer/>

This is what browsers see.

**Headline**  
**Subheadline**  
*Italics*

text text text text text text text text text text  
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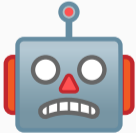
[Link1](#) [Link2](#) [Link3](#)  
[Link4](#)


This is what humans see.

**Title**  
**Author**  
*Publication Date*

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[Tao1](#) [Tao2](#) [Tao3](#)  
[Copyright License](#)

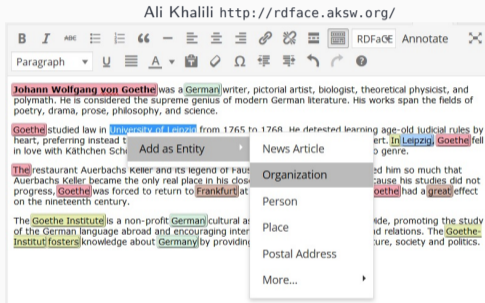




*Can we bridge the gap so that browsers see more of what we see?*

# Problem

Yes, RDF and other formats help us to annotate and express data on the Web.



# Problem

Yes, RDF and other formats help us to annotate and express data on the Web.



Ali Khalili <http://rdface.aksw.org/>

**B** *I* *ABC* [List Icons] [Quote Icon] [Link Icon] [Table Icon] RDFaCE Annotate [Share Icon]

Paragraph [Underline Icon] [List Icons] [Text Color Icon] [Image Icon] [Link Icon] [Unlink Icon] [Undo Icon] [Redo Icon] [Help Icon]

**Johann Wolfgang von Goethe** was a **German** writer, pictorial artist, biologist, theoretical physicist, and polymath. He is considered the supreme genius of modern German literature. His works span the fields of poetry, drama, prose, philosophy, and science.

**Goethe** studied law in **University of Leipzig** from 1765 to 1768. He detested learning age-old judicial rules by heart, preferring instead to in love with Käthchen Schell.

**The** restaurant Auerbachs Keller and its legend of Faust became the only real place in his close progress, **Goethe** was forced to return to **Frankfurt** at on the nineteenth century.

The **Goethe Institute** is a non-profit **German** cultural as of the German language abroad and encouraging inter **Institut fosters** knowledge about **Germany** by providing

**Add as Entity**

- News Article
- Organization
- Person
- Place
- Postal Address
- More...

ert. In **Leipzig**, **Goethe** fell to genre.

ed him so much that cause his studies did not **Goethe** had a **great** effect

side, promoting the study and relations. The **Goethe** culture, society and politics.

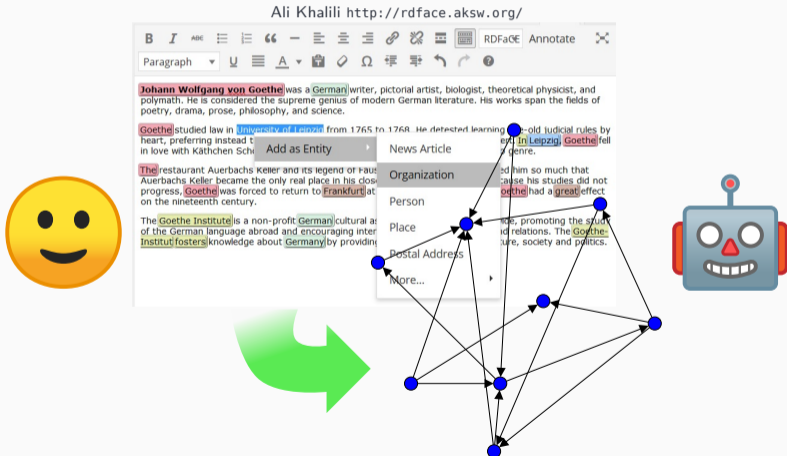
# Problem

Yes, RDF and other formats help us to annotate and express data on the Web.

The screenshot displays the Ali Khalili rdface.aksw.org web application. On the left, a yellow smiley face emoji is visible. The main area shows a text document with several paragraphs. The first paragraph is about Johann Wolfgang von Goethe, highlighting his German nationality and his roles as a writer, pictorial artist, biologist, theoretical physicist, and polymath. The second paragraph mentions Goethe's studies in law at the University of Leipzig and his love for Kathchen Scherz. The third paragraph discusses the restaurant Auerbachs Keller and its legend of Faust. The fourth paragraph mentions the Goethe Institute, a non-profit cultural association of the German language abroad. On the right, a network graph is shown, consisting of blue nodes connected by black lines, representing the semantic relationships between the entities mentioned in the text. A green arrow points from the text area towards the network graph.

# Problem

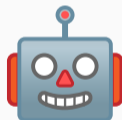
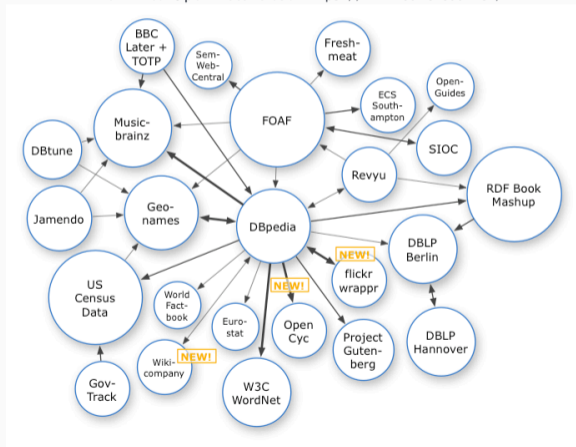
Yes, RDF and other formats help us to annotate and express data on the Web.



# Problem

An increasing amount of data is published as RDF resp. Linked Data ...

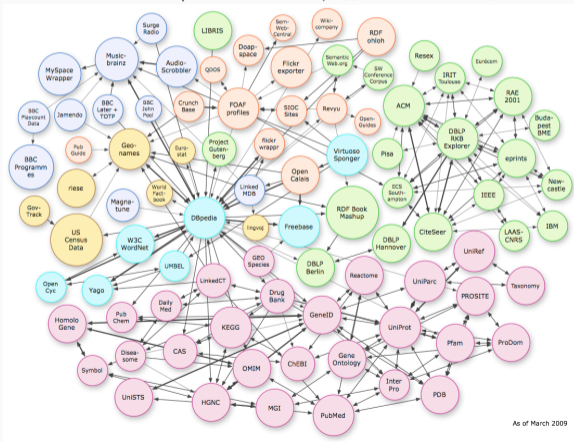
The Linked Open Data Cloud <https://www.lod-cloud.net/>



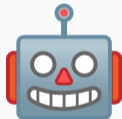
# Problem

An increasing amount of data is published as RDF resp. Linked Data ...

The Linked Open Data Cloud <https://www.lod-cloud.net/>

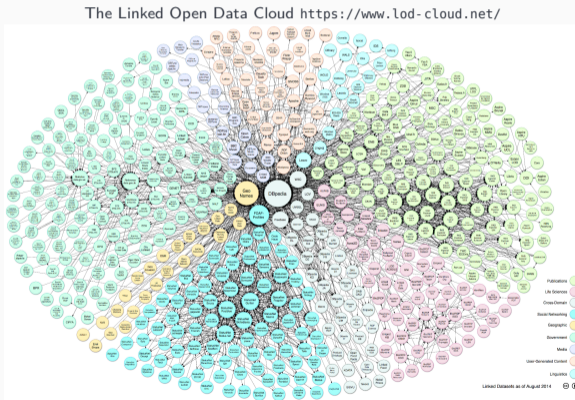


As of March 2009



# Problem

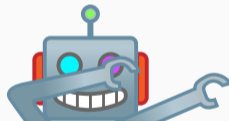
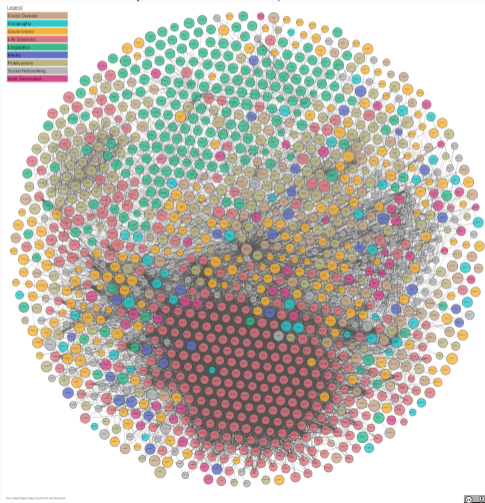
... while this data is hardly accessible to humans.



# Problem

... while this data is hardly accessible to humans.

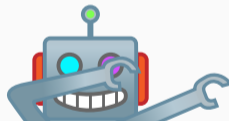
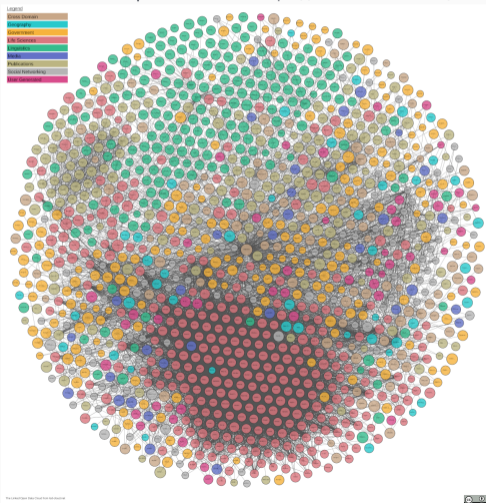
The Linked Open Data Cloud <https://www.lod-cloud.net/>



# Problem

*How can we make Data on the Web accessible to machines and to humans?*

The Linked Open Data Cloud <https://www.lod-cloud.net/>



# Problem

The screenshot shows a web-based editor interface for RDFa. The top toolbar includes standard text formatting icons (bold, italic, underline, bulleted list, numbered list, quote, link, unlink, table, etc.) and buttons for 'RDFaCE' and 'Annotate'. Below the toolbar is a 'Paragraph' dropdown menu. The main text area contains three paragraphs of text. The first paragraph is about Johann Wolfgang von Goethe. The second paragraph mentions the University of Leipzig and Leipzig. The third paragraph mentions the restaurant Auerbachs Keller and Frankfurt. A context menu is open over the word 'Goethe' in the second paragraph, with the 'Organization' option highlighted. The menu options are: Add as Entity, News Article, Organization, Person, Place, Postal Address, and More... The text in the background is partially obscured by the menu.

**Johann Wolfgang von Goethe** was a German writer, pictorial artist, biologist, theoretical physicist, and polymath. He is considered the supreme genius of modern German literature. His works span the fields of poetry, drama, prose, philosophy, and science.

Goethe studied law in University of Leipzig from 1765 to 1768. He detested learning age-old judicial rules by heart, preferring instead to learn from life. In Leipzig, Goethe fell in love with Kathchen Scherer.

The restaurant Auerbachs Keller and its legend of Faust became the only real place in his close progress, Goethe was forced to return to Frankfurt at the end of the nineteenth century.

The Goethe Institute is a non-profit German cultural association of the German language abroad and encouraging international relations. The Goethe Institute fosters knowledge about Germany by providing information, promoting the study of German language and culture, society and politics.

Context menu options:

- Add as Entity
- News Article
- Organization
- Person
- Place
- Postal Address
- More...

# Problem

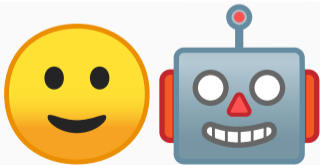
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**Goethe** studied law in **University of Leipzig** from 1765 to 1768. He detested learning age-old judicial rules by heart, preferring instead to learn by experience. **In Leipzig**, **Goethe** fell in love with Kathchen Scherer.

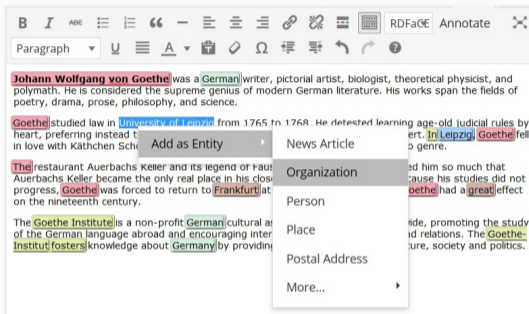
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- Add as Entity
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# Problem



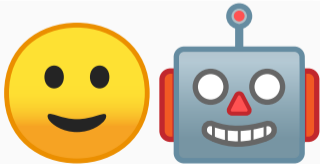
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- Add as Entity
  - News Article
  - Organization**
  - Person
  - Place
  - Postal Address
  - More...



# Problem

**Johann Wolfgang von Goethe** was a **German** writer, pictorial artist, biologist, theoretical physicist, and polymath. He is considered the supreme genius of modern German literature. His works span the fields of poetry, drama, prose, philosophy, and science.

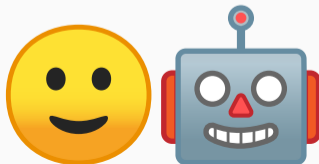
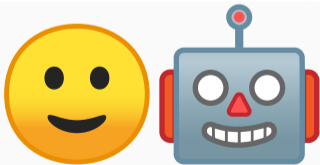
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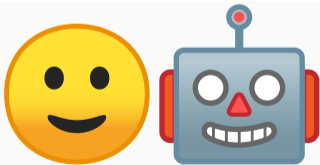
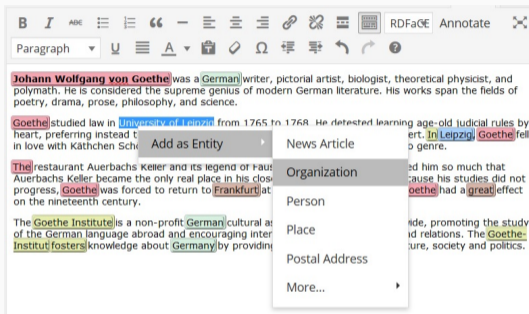
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Annotation menu:

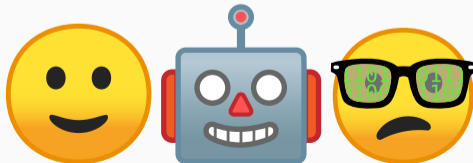
- Add as Entity
  - News Article
  - Organization
  - Person
  - Place
  - Postal Address
  - More...



# Problem



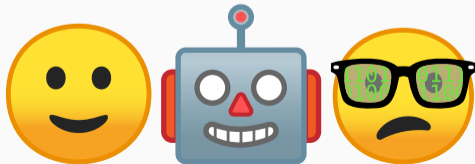
- hard to maintain



# Problem



- hard to maintain



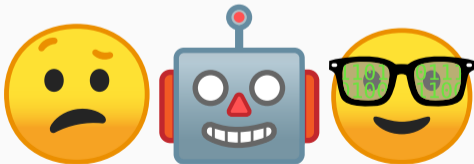
# Problem



members of	<ul style="list-style-type: none"> <li>↳ Utrecht Network + 6 references</li> <li>↳ Deutsches Forschungsinstitut + 1 reference</li> <li>↳ German Research Conference + 1 reference</li> </ul>
students count	<ul style="list-style-type: none"> <li>↳ 26,772 point in time + 1 reference</li> <li>↳ 30,226 point in time + 1 reference</li> </ul>
language used	<ul style="list-style-type: none"> <li>↳ German + 1 reference</li> </ul>
member of	<ul style="list-style-type: none"> <li>↳ Dfgpedia + 6 references</li> </ul>
headquarters location	<ul style="list-style-type: none"> <li>↳ Leipzig + 1 reference</li> </ul>
employees	<ul style="list-style-type: none"> <li>↳ 5,308 point in time + 1 reference</li> </ul>
pkv routing prefix	<ul style="list-style-type: none"> <li>↳ 2001:638:902::/49 + 1 reference</li> </ul>

# Problem

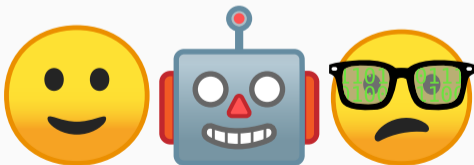
- Dynamic presentations are often not tailored to the content



members of	<div> <div> <div>Utrecht Network</div> <div>+ 6 references</div> </div> </div>	
	<div> <div>Deutsches Forschungsinstitut</div> <div>+ 3 reference</div> </div>	
	<div> <div>Bonnas Rectors' Conference</div> <div>+ 3 reference</div> </div>	
students count	<div> <div>26,772</div> <div>point in time</div> <div>+ 3 reference</div> </div>	2012
	<div> <div>30,226</div> <div>point in time</div> <div>+ 3 reference</div> </div>	October 2017
language used	<div> <div>German</div> <div>+ 3 reference</div> </div>	<div> <div>du:linguip</div> <div>du:du:linguip</div> <div>du:du:linguip</div> </div>
		<div> <div>1489-12-02:users</div> </div>
		<div> <div>Aus Tradition Grenzen überschreiten - Crossing Boundaries out of Tradition</div> </div>
member of	<div> <div>Digipedia</div> <div>+ 6 references</div> </div>	<div> <div>du:triffo</div> <div>du:triffo:users</div> <div>du:triffo:users</div> </div>
		<div> <div>du:Beate_Schilling</div> </div>
		<div> <div>3246:users</div> </div>
headquarters location	<div> <div>Linguiq</div> <div>+ 3 reference</div> </div>	<div> <div>du:du</div> <div>du:du</div> <div>du:du</div> </div>
		<div> <div>du:Secretary</div> </div>
employees	<div> <div>5,308</div> <div>point in time</div> <div>+ 3 reference</div> </div>	2018
		<div> <div>du:Public_university</div> </div>
		<div> <div>https://www.ubs.uni-linguiq.de/en/</div> <div>http://www.ubs.uni-linguiq.de/</div> <div>http://ub.uni-linguiq.de/de.php?lang=de_aktuelles&amp;schilling=mk&amp;id=6</div> <div>http://www.ubs.uni-linguiq.de/de.php</div> <div>http://www.uni-linguiq.de/</div> <div>http://www.ubs.uni-linguiq.de/de/de_aktuelles.php?category=country-de</div> </div>
ipv6 routing profile	<div> <div>2061:638:903::/49</div> <div>+ 3 reference</div> </div>	
		<div> <div>du:du:Public_university</div> </div>
		<div> <div>148474:users</div> </div>
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		<div> <div>Urban</div> </div>
		<div> <div>Ubi-Linguiq - Stuttgart</div> </div>
		<div> <div>299:users</div> </div>
		<div> <div>du:Educational_institutions_additioned_in_the_19th_century</div> <div>du:1429_establishments_in_the_19th_Century_Europe</div> <div>du:Linguiq_University</div> <div>du:Water_attractions_in_Linguiq</div> <div>du:12:stations_and_colleges_in_Society</div> </div>
		<div> <div>du:Universities</div> </div>
	<div> <div>http://portal.org/linguiq/du:Public_university</div> </div>	<div> <div>51_239_12_279</div> </div>

# Problem

- Dynamic presentations are often not tailored to the content
- ... or they are built for a specific purpose



PLACE KOLDA Nachrichtenkom. für das THW Friedwika NA Fennfelder

☒ Funk ☐ Telefon ☐ Telefax ☐ DFÜ ☐ Kurier/Melder

Technisches Betriebsbuch

☒ Eingehend ☐ Ausgehend ☐ Beförderungsweg

☒ N: ☐ Eingehend ☐ Ausgehend

Eingehend Aufnahmevermerk

Datum: 01.09.2018

Zeit: 14:20:45

HQZ: NA

Ausgehend Aufnahmevermerk

Datum:

Zeit:

HQZ:

Beförderungsweg

Datum:

Zeit:

HQZ:

Rufname der Gegenstelle/Sprechkopf: Heros Leipzig 16/01

☐ Funk ☐ Telefon ☐ Telefax ☐ DFÜ ☐ Kurier/Melder

☐ DURCHGABE ☐ Spruch ☐ Sofort ☐ Blitz

Ruf Nr.:  Anschrift:  GESPRÄCHSKOTIZ: ☐

Erkundungsergebnis: die Aufstellfläche Kloppeubstraße nahe Klempdora wird von einer Hochspannungskleitung gequert. Pächter ist mit einem Aufbau der Führungsstelle einverstanden.

Absender:  FK Erkundungstrupp:

Abmessungszeit:  Zeichen:  Funktion:

Culturg

Zeit:  Vermerke:

Zeichen:

TELE/LEAL/UEAL

Leiter: ☐ S1 ☐ S2 ☐ S3 ☐ S4 ☐ S5

Fachberater: ☐

Verb. stellen: ☐

Weiterenden

Zurücksetzen

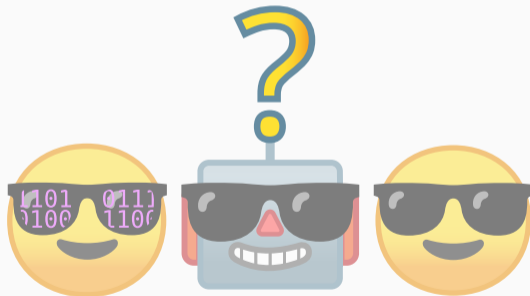


*The Web was designed as an **information space**, with the goal not only that it should be useful for **human–human communication**, but also that **machines** would be able to participate and **help users communicate** with each other.*

Berners-Lee, T., Hendler, J.: Publishing on the semantic web. Nature 410(6832) (2001)

# Problem

How can we close the gap between  
structured data and human accessible exploration interfaces?

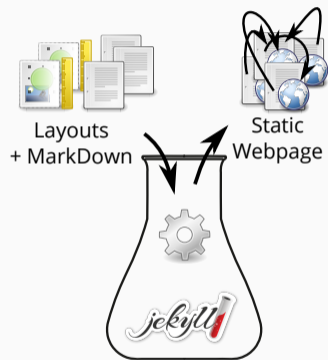


## Approach

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# Approach

- We take the popular Jekyll system<sup>1</sup>
- It is a *Static Site Generator* and CMS<sup>2</sup>
- From a set of layout templates and markdown files it builds a webpage
- The webpage is static and self contained and thus can be served with minimum effort using e.g. nginx, github pages, static webpace
- Powerful, extensible, and simple templating language



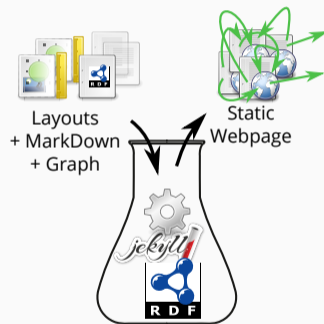
<sup>1</sup><https://jekyllrb.com/>, <https://www.staticgen.com/>, <https://www.netlify.com/blog/2016/05/02/top-ten-static-website-generators/>

<sup>2</sup>Content Management System

# Approach

A Jekyll plugin to include RDF data in your static site or build a complete site for your RDF graph

- Creates one page per resource
- Assign layouts per RDF class
- Standard simple Jekyll layouts
- + filters to add resource properties
- + filter to query the entire graph



# Approach

```
<? a foaf:Document, schema:Event ;
  rdfs:label "7. Leipziger Semantic Web Tag"@de, "7th Leipzig Semantic Web Day"@en ;
  rdfs:comment ""Der Leipziger Semantic Web Tag (LSWT) ... [Language, Data and Knowledge (LDK) Konferenz](http://2019.ldk-conf.org/) ...""@de,
    ""Since 2009, the Leipzig Semantic Web Day (LSWT) ... [Language, Data and Knowledge (LDK) conference](http://2019.ldk-conf.org/) ...""@en;
  schema:logo </images/logo.png> ;
  schema:startDate "2019-05-22"^^xsd:date ;
  schema:endDate "2019-05-22"^^xsd:date ;
  schema:location lswt:Location ;
  site:registrationPage <https://pretix.eu/infai/lswt2019/> ;
  schema:organizer lswt:Team ;
  schema:partner lswt:Partner ;
  schema:subEvent lswt:StudentProgram ;
  schema:successorOf lswt:PreviousEvents .

lswt:Location a schema:PostalAddress ;
  rdfs:label "Veranstaltungsort"@de, "Venue"@en ;
  rdfs:comment "Das INNSIDE ... gegenüber der Thomaskirche."@de, "The INNSIDE ... just opposite to famous Thomaskirche."@en ;
  rdfs:seeAlso <https://www.melia.com/de/hotels/deutschland/leipzig/inside-leipzig/index.htm> ;
  schema:name "INNSIDE Hotel Leipzig" ;
  schema:streetAddress "Gottschedstraße 1" ;
  schema:postalCode "04109" ;
  schema:addressLocality "Leipzig" ;
```

## RDF + HTML Template

```
<h1 class="display-4">{{ rootResource | rdf_property: "rdfs:label", page.language }}</h1>
{{ rootResource | rdf_property: "rdfs:comment", page.language | markdownify }}

<p><a href="{{ rootResource | rdf_property: "site:registrationPage" }}" role="button" class="btn btn-success">
  {{ "site:registrationPage" | rdf_property: "rdfs:label", page.language }}
</a></p>

<dl>
  <dt>{{ "schema:startDate" | rdf_property: "rdfs:label", page.language }}</dt>
  <dd>{{ rootResource | rdf_property: "schema:startDate" | localize: "%-d. %B %Y", page.language }}</dd>
  <dt>{{ "schema:location" | rdf_property: "rdfs:label", page.language }}</dt>
  <dd>{{ assign location = rootResource | rdf_property: "schema:location" %}}
  <div><a href="{{ location.page_url }}">{{ include address.html location=location %}}</a></div>
</dd>
</dd>
```



```

a: foaf:Document, schema:Event ;
  rdfs:label "77. Leipzig Semantic Web Tag"@de, "77th Leipzig Semantic Web Day"@en ;
  rdfs:comment ""Der Leipziger Semantic Web Tag (LSWT) ... [Language, Data and Knowledge (LDK) Konferenz](http://2019.ldk-conf.org/) ...""@de,
    ""Since 2009, the Leipzig Semantic Web Day (LSWT) ... [Language, Data and Knowledge (LDK) conference](http://2019.ldk-conf.org/) ...""@en;
  schema:logo </images/logo.png>;
  schema:startDate "2019-05-22"^^xsd:date ;
  schema:endDate "2019-05-22"^^xsd:date ;
  schema:location lswt:Location ;
  site:registrationPage <https://pretix.eu/infai/lswt2019/> ;
  schema:organizer lswt:Team ;
  schema:partner lswt:Partner ;
  schema:subEvent lswt:StudentProgram ;
  schema:successorOf lswt:PreviousEvents .

```

```

<swt:location a: schema:PostalAddress ;
  rdfs:label "Veranstaltungsort"@de, "Venue"@en ;
  rdfs:comment "Das INNINSIDE - gegenüber der Thoma
rdfs:seeAlso <https://www.melia.com/de/hotels/d
schema:name "INNINSIDE Hotel Leipzig" ;
schema:streetAddress "Gottschedstraße 1" ;
schema:postalCode "04109" ;
schema:addressLocality "Leipzig" ;

```

#LSWT2019

## 7th Leipzig Semantic Web Day

Since 2009, the [European Semantic Web Day \(ESWD\)](#) is an opportunity for scientists, enterprises, and organisations to discuss topics in the field of Semantic Technology. These emphases are demonstrated in presentations by experts from industry and science ([schedule](#)). If you have any further questions don't hesitate to contact the [organisation team](#). The InfAI organises workshops, e.g. on [Semantic Web](#), [Knowledge Representation](#), [Language, Data and Knowledge \(LDK\)](#) conference (20-22 May) at the University of Leipzig or the [33rd European Conference on Artificial Intelligence](#) (23-27 May) at the media campus Villa Ida.

## Registration

Date  
22. May 2019

**Place**  
INNSIDE Hotel Leipzig, Gottschedstraße 1, 04109 Leipzig

# Webpage

```
<h1 class="display-4">{{ rootResource | rdf_property: 'rdfs:label', page.language }}</h1>
{{ rootResource | rdf_property: 'rdfs:comment', page.language | markdownify }}

<a href="{{ rootResource | rdf_property: 'site:registrationPage' }}" role="button" class="btn btn-success">
  {{ "site:registrationPage" | rdf_property: 'rdfs:label', page.language }}
</a></p>

<div>
<div>{{ "schema:startDate" | rdf_property: 'rdfs:label', page.language }}</div>
<div>{{ rootResource | rdf_property: 'schema:startDate' | localize: "%-d. %B %Y", page.language }}</div>
<div>{{ "schema:location" | rdf_property: 'rdfs:label', page.language }}</div>
{% assign location = rootResource | rdf_property: 'schema:location' %}
<div><a href="{{ location.page_url }}">{% Include address.html location=location %}</a></div>
</div>
```



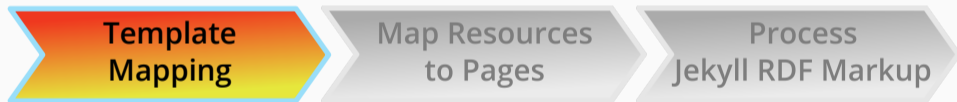
# Approach



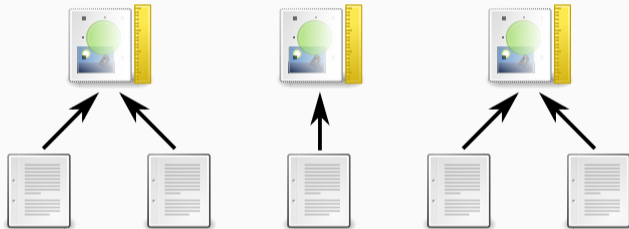
## Template Mapping

---

# Template Mapping



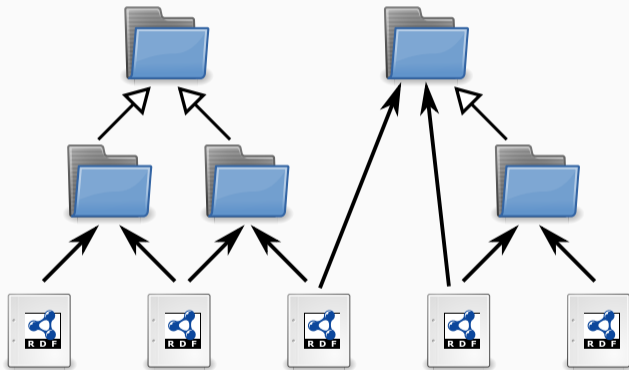
# Template Mapping



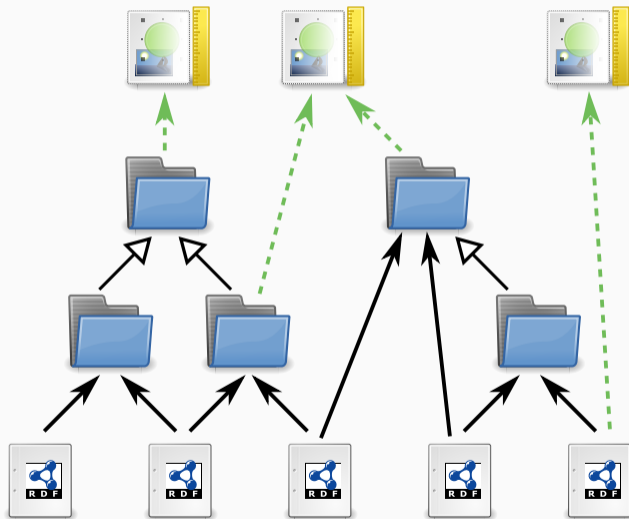
# Template Mapping



# Template Mapping



# Template Mapping



# Template Mapping

```
1  baseUrl: "/sachsen/"
2  url: "http://pfarrerbuch.aksw.org"
3  plugins: [jekyll-rdf]
4  jekyll_rdf:
5      path: "sachsen.ttl"
6      restriction: "SELECT ?resourceUri WHERE {?resourceUri ?p ?o .
7                      FILTER regex(str(?resourceUri),
8                      '^http://pfarrerbuch.aksw.org/sachsen/')}]"
9  default_template: "resource"
10 class_template_mappings:
11     "http://xmlns.com/foaf/0.1/Person": "person"
12     "http://purl.org/voc/hp/Place": "place"
13     "http://purl.org/voc/hp/Position": "position"
14 instance_template_mappings:
15     "http://pfarrerbuch.aksw.org/": "home"
```

## Resource Mapping and Site Creation

---

# Resource Mapping and Site Creation



# Resource Mapping and Site Creation

```
1  baseUrl: "/sachsen/"
2  url: "http://pfarrerbuch.aksw.org"
3  plugins: [jekyll-rdf]
4  jekyll_rdf:
5    path: "sachsen.ttl"
6    restriction: "SELECT ?resourceUri WHERE {?resourceUri ?p ?o .
7                  FILTER regex(str(?resourceUri),
8                  '^http://pfarrerbuch.aksw.org/sachsen/')}]"
9  default_template: "resource"
10 class_template_mappings:
11   "http://xmlns.com/foaf/0.1/Person": "person"
12   "http://purl.org/voc/hp/Place": "place"
13   "http://purl.org/voc/hp/Position": "position"
14 instance_template_mappings:
15   "http://pfarrerbuch.aksw.org/": "home"
```

# Resource Mapping and Site Creation



Figure 1: Scheme of the selection of page paths based on the configured Jekyll Site URL.

## Jekyll RDF Markup Language

---



# Jekyll RDF Markup Language

```
1 <h1>{{ page.title }}</h1>
2 <div>{{ page.date | date: "%Y-%m-%d" }}</div>
3
4 <div>{{ content }}</div>
```

# Jekyll RDF Markup Language

Table 1: The filters defined by Jekyll RDF and the tasks performed by them.

Filter	Parameters ([optional])	Description
<code>rdf_get</code>		Get a variable representing a resource from the RDF graph.
<code>rdf_property</code>	IRI, [language, bool]	Get a value of a property of a resource. If the last parameter is set to true an array is returned (line 8).
<code>rdf_inverse_property</code>	IRI, [bool]	Get the value of an inverse property.
<code>rdf_collection</code> and <code>rdf_container</code>	[IRI]	Get RDF collections and RDF containers from the RDF graph.
<code>sparql_query</code>	sparql query	Execute a SPARQL Query on the RDF graph, the passed value is bound to <code>?resourceUri</code> or to <code>?resourceUri_n</code> if an array is provided.

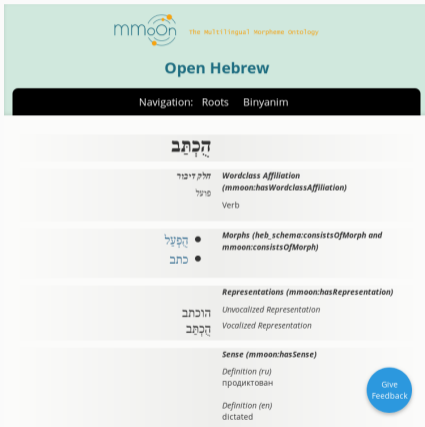
# Jekyll RDF Markup Language

```
1 <h1>{{ page.rdf | rdf_property: "rdfs:label", "en" }}</h1>
2 <div>{{ page.rdf | rdf_property: "dct:created" | date: "%Y-%m-%d" }}</div>
3
4 {% assign publicationlist = "ex:publicationlist" | rdf_container %}
5 <ul>
6   {% for pub in publicationlist %}
7     <li>{{ pub | rdf_property: "dc:title" }}</li>
8     <li>{{ pub | rdf_property: "dct:creator", false, true | join: ", " }}</li>
9   {% endfor %}
10 </ul>
```

## Examples

---

# Examples



mmoon the Multilingual Morpheme ontology

Open Hebrew

Navigation: Roots Binyanim

הִכְתִּיב

חלק דיבור  
פעיל

Wordclass Affiliation  
(mmoon:hasWordclassAffiliation)  
Verb

הפעל  
כתב

Morphs (heb\_schema:consistsOfMorph and  
mmoon:consistsOfMorph)

Representations (mmoon:hasRepresentation)

הוכתב  
הִכְתִּיב

Unvocalized Representation  
Vocalized Representation

Sense (mmoon:hasSense)

Definition (ru)  
продиктован

Definition (en)  
dictated

Give Feedback

Setup	Open Hebrew Inventory
#Triples	197,374
#Templates/#Pages	4/2
#Res. Pages	13,426
Avg. Runtime	1952.4 s (32.54 min)

# Examples

## Pfarrerbuch Sachsen

**Bemerkung:** Die aktuell verfügbare Ansicht ist lediglich ein Ausschnitt unserer Datenbank und dient zu Demonstrationszwecken.

### Über das Projekt

„Pfarnbuch“ ist ein Projekt der Arbeitsgemeinschaft für Sächsische Kirchengeschichte, des Instituts für Kirchengeschichte der Universität Leipzig und des Instituts für Angewandte Informatik (InfAI) an der Universität Leipzig sowie des Instituts für Kirchengeschichte an der Evangelisch-Lutherischen Theologischen Universität Budapest.

Projektleiter Kirchengeschichte: **Dr. theol. Markus Hein** Theologische Fakultät – Institut für Kirchengeschichte Martin-Luther-Ring 3, 04109 Leipzig, Deutschland E-Mail: hein(a)uni-leipzig.de

Projektteam Informatik: **Prof. Dr. Thomas Riechert**, Edgard Marx und Nataneeel Arndt Institut für Angewandte Informatik (InfAI), Arzintstitut der Universität Leipzig Goerdelerring 9, 04109 Leipzig, Deutschland E-Mail: riechert(a)infai.org, arndt(a)infai.org

Projektleiter Ungarn: **Prof. Dr. Zoltán Cséregi** Institute für Kirchengeschichte an der Evangelisch-Lutherischen Theologischen Universität Budapest Rózsaevölgyi köz 3, H-1161 Budapest, Ungarn E-Mail: zoltan.cseregi(a)lutheran.hu

### Orte

- Leipzig
- Niederfröschke
- Grimma

### Personen

- Werner, Friedrich (\*1659-05-28 11741-04-21)
- Schubarth, Melchior Traugott (\*1723-01-02 11804-07-07)
- Facildes, Johann Victorin (\*1727-05-26 11780)
- Müller, Daniel (\*1612-10-21Z 11686-03-13Z)
- Holzmann, Friedrich (\*1621-11-01 11676-06-18)
- Bake, Reinhard (\*1587-05-04Z 11657-02-19Z)
- Birnbaum, Christian Gotthelf (\*1661-05-29Z 11732-09-13Z)
- Sützhay, Jeremias von (\*1639 11693)
- Waldauer, Richard (\*1867-11-03 11967-10-18)
- Birkau, Karl Theodor (\*1836-10-25Z 11896-07-25Z)
- Ostarrhild, Christian \*Friedrich Gilbert (\*1878 11972)
- Gauditz, Gottlieb (\*1694-11-17 11745-02-20)
- Griffe, Gustav Bernhard (\*1820-10-02 11887-01-04)
- Lechitz, Gotthelf Ehrenfried (\*1694 11793)

Setup

#Triples

#Templates/#Pages

#Res. Pages

Avg. Runtime

Pfarrerbuch (demo subset)

1,685

4/-

138

8 s

# Examples

The screenshot shows the website for SMART DATA ANALYTICS. The header includes a logo and navigation links: About, People, Groups, Projects, Publications, Jobs, Teaching, Thesis, Partners, Blog. The main content area is titled "Distributed Semantic Analytics" and includes a description: "The research group develops scalable analytics algorithms based on Apache Spark and Apache Flink for analyzing large scale datasets by distributing the computational tasks in memory." Below this, there are sections for "Leaders" (Dr. Hajira Jabeen), "Group Members" (Prof. Dr. Jens Lehmann, Dr. Anissa Rula, Harsh Thakkar, Fathore A. Muzaffa, Dr. Hajira Jabeen, Gezim Sejdiu, Mohamed Nadjib Mami, Shimoa Ibrahim, Dr. Damien Graux, Heba Ibrahim), "Projects" (DL Leamer, IDS Boost4.0, Big Data Europe, Semantic Analytics Stack (SANSa)), and "Publications". A blue plus button is visible in the bottom right corner of the content area.

<b>Setup</b>	SDA Work Group
<b>#Triples</b>	27,295
<b>#Templates/#Pages</b>	8 (Class) + 49 (Instance)/2
<b>#Res. Pages</b>	253
<b>Avg. Runtime</b>	327.3 s (5.45 min)

# Examples

[Edition](#)  
[Role](#)  
[Video Game](#)  
[Diggr entity](#)  
[Production event](#)  
[Platform](#)  
[Edition](#)  
[Company](#)  
[Platform](#)  
[Local Release](#)  
[Role relation](#)

## diggr Video Game Vocabulary

A Vocabulary for Interlinking Video Game Databases

---

**Version**  
1.0

**Created**  
2017-04-04

**Modified**  
2019-01-20

**Preferred Namespace Prefix**  
diggr

**Preferred Namespace URI**  
<http://vocab.ub.uni-leipzig.de/diggr/>

---

**Classes** 10   **Object Properties** 22   **Datatype Properties** 1

### Overview

#### Classes

**Edition**  
<http://vocab.ub.uni-leipzig.de/diggr/Edition>

[Description](#)   [Annotations](#)   [Relations](#)

The Edition entity type denotes a particular instantiation of a video game platform version. An edition

<b>Setup</b>	diggr Vocabulary
<b>#Triples</b>	221
<b>#Templates/#Pages</b>	1/-
<b>#Res. Pages</b>	1
<b>Avg. Runtime</b>	8 s

## Conclusion

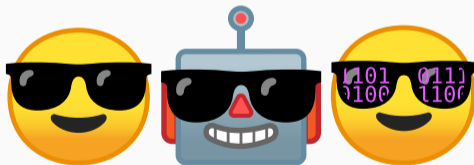
---

# Conclusion

- Create webpages from RDF data sources (CMS, exploration interface)
- Cost efficient serving of static sites
- Customizability of the layout without code, by using a templating language

# Conclusion

- Create webpages from RDF data sources (CMS, exploration interface)
- Cost efficient serving of static sites
- Customizability of the layout without code, by using a templating language



Hands On

---



<https://github.com/white-gecko/JekyllRDF-Tutorial>

<https://natanael.arndt.xyz/2018/08/07/jekyll-rdf-tutorial-screencast>

<https://vimeo.com/283525074>

## Contact

---



## Natanael Arndt

arndt@informatik.uni-leipzig.de

<https://natanael.arndt.xyz>

twitter: @white\_gecko

mastodon: @white\_gecko@chaos.social

Web Page: <http://aksw.org/Projects/JekyllRDF>

GitHub: <https://github.com/AKSW/jekyll-rdf>

**Jekyll RDF: Template-Based Linked Data Publication with Minimized Effort and Maximum Scalability** Natanael Arndt, Sebastian Zänker, Gezim Sejdiu, Sebastian Tramp *in* Proceedings of the 19th International Conference on Web Engineering (ICWE 2019)

<https://natanael.arndt.xyz/bib/arndt-n-2019--jekyll-rdf>

[https://doi.org/10.1007/978-3-030-19274-7\\_24](https://doi.org/10.1007/978-3-030-19274-7_24)

## Credits

---

# Credits

- Emojis licensed under Apache License Version 2.0
-          Copyright 2013 Google, Inc. All Rights Reserved.
-               Copyright 2013 Google, Inc. All Rights Reserved, Copyright 2019 Natanael Arndt <arndtn@gmail.com> All Rights Reserved.

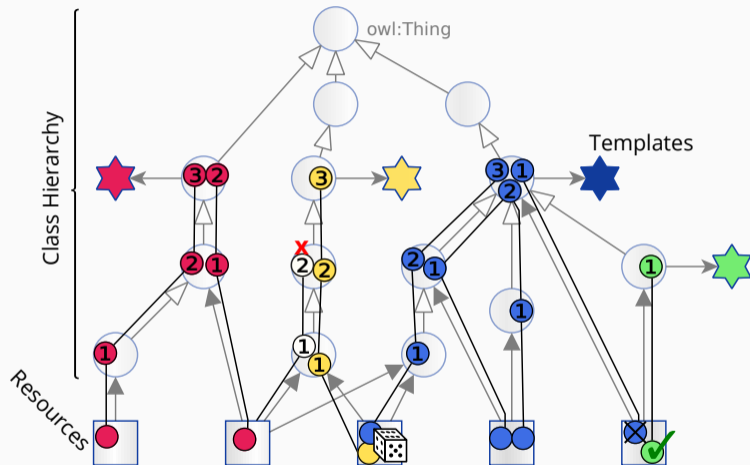


Figure 2: The class hierarchy is used to select the template to render a resource.